

THE CHANGING FACE OF CIGUATERA PREVALENCE. *Memoirs of the Queensland Museum* 34(3): 554. 1994:- Ciguatera cases in Queensland (recorded mostly by the Queensland Department of Health) between 1965-1992 are compiled into a database of 920 cases attributable to 343 outbreaks. Pelagic fish, mainly mackerel, account for 65% of all recorded cases while reef fish account for 35% of cases. Pelagic fish were found to have a significantly higher prevalence of 8 of the 27 surveyed symptoms than reef fish, these being temperature reversal, diarrhoea, nausea, vomiting, abdominal pain, joint pain, dental pain and ataxia. Northern fish ($\leq 24^{\circ}\text{S}$ catch location) accounted for 33% of recorded cases while southern fish accounted for 67% of cases. Northern fish were more likely than southern fish to be associated with a neurological symptom profile (odds ratio=2.0; 95% CI [1.38, 2.82]). Neurological profiles (neurological symptoms only) accounted for 18.2% of recorded cases. This symptom profile has become more common over the last decade,

reflecting a significant shift in toxic fish consumption from southern pelagic to both northern and reef fish.

A subset of the 920 cases (N=657) were used to model temporal and geographical shifts from 1976-1992 in major responses such as time to onset of first symptom (ONSET) and prevalence of a neurological profile. Statistical modelling included robust regression modelling (generalised additive modelling) and statistical graphics. Significant and complex shifts in temporal and spatial prevalence were found. Results and implications of this modelling are discussed.

M.Y. Chaloupka, Queensland Department of Environment and Heritage, 160 Anne Street, Brisbane, Queensland 4001; Richard J. Lewis & M. Sellin, Southern Fisheries Centre, Queensland Department of Primary Industries, P.O. Box 76, Deception Bay, Queensland 4508; 1 May 1994.

ORAL AND INTRAPERITONEAL ADMINISTRATION STUDIES OF TOXINS DERIVED FROM FISH TISSUES AND EXTRACTS OF CULTURED *G. TOXICUS* IN THE HUMBUG (*D. ARUANUS*), DAMSEL-FISH (*P. WARDI*) AND THE STRIPEY (*L. CARPONOTATUS*). *Memoirs of the Queensland Museum* 34(3): 554. 1994:- Toxin administration experiments were designed to compare effects of ciguatoxin(s) (CTX) and toxin(s) in extracts of *G. toxicus* (GDT) between teleost fish, and between species of teleosts; to quantify bioaccumulation of toxins in fish skeletal muscle; and to obtain evidence of bioconversion of GDT to CTX in treated fish.

Based on interpretation of signs and death-times, CTX and GDT administered i.p. are potent teleost neurotoxins. A comparison of dose effect of *G. toxicus* extract in *D. aruanus* and *P. wardi* shows variable susceptibility to *G. toxicus*-related toxins in fish that may be related to trophic niche.

Feeding and subsequent extraction and quantification of CTX in *L. carponotatus* defined approximate oral effective dosages and rates of incorporation in skeletal muscle. Feeding experiments in *L. carponotatus* indicated that the potency of GDT is at least half that of CTX. *L. carponotatus*, *D. aruanus* and *P. wardi* were unable to bioaccumulate or bioconvert GDT to CTX under these experimental conditions in quantities sufficient for detection in the mouse bioassay of residues derived from the skeletal muscle of experimental fish.

Scott T. Hahn, Michael F. Capru, Centre for Biological Population Management, Queensland University of Technology, GPO Box 2434, Brisbane 4001, Australia & Donald M. Miller, Southern Illinois University School of Medicine, IL, USA; 12 April, 1993.